**CUSTOMER O&M FUNDING PLAN**
**BUREAU OF RECLAMATION**
**TECHNICAL REPORT ON FISCAL YEAR 2001 ACTIVITIES**
**FOR THE PERIOD FEBRUARY 1, 2001 – MAY 31, 2001**

**PROGRAM SUMMARY**

| Project Name | Total Project Budget | Prior Year Obligation | Proj Budget Remaining @ 10/1/00 | Obligations Made This Period | Project Budget Remaining | Total Project Obligations | Total Project Budget | Percent of Budget |
|---|---|---|---|---|---|---|---|---|
| Clear Creek Tunnel Cleaning | 250,000 | 99,895 | 150,105 | 149,239 | 866 | 249,134 | 250,000 | 99.65% |
| Keswick PP Trash Rake | 150,000 | 14,864 | 135,136 | 5,688 | 129,448 | 20,552 | 150,000 | 13.70% |
| Spring Creek Powerplant O&M | 490,000 | 0 | 490,000 | 320,906 | 169,094 | 320,906 | 490,000 | 65.49% |
| Spring Creek Transformer | 495,000 | 0 | 495,000 | 7,042 | 487,958 | 7,042 | 495,000 | 1.42% |
| Spring Cr Air Circuit Breaker 1/ | 183,000 | 0 | 183,000 | 0 | 183,000 | 0 | 183,000 | 0.00% |
| Rapid Return to Service 2/ | 825,000 | 158,222 | 666,778 | 482,263 | 184,515 | 640,485 | 825,000 | 77.63% |
| Total | 2,393,000 | 272,981 | 2,120,019 | 965,138 | 1,154,881 | 1,238,119 | 2,393,000 | 51.74% |

1/ The Spring Creek Air Circuit Breaker budget was reduced by $1,000 to compensate for charges made against the canceled New Melones Butterfly Value Project.
2/ $216,778 was carried over from FY00. The Governance Board approved utilization of these funds in FY2001. The board also approved additional $200,000 of funding borrowed from the Spring Transformer Rehab Project.

**CUSTOMER O&M FUNDING PLAN**
**BUREAU OF RECLAMATION**
**REPORT ON FISCAL YEAR 2000 ACTIVITIES**
**FOR THE PERIOD FEBRUARY 1, 2001 – MAY 31, 2001**
**DETAIL**

## CLEAR CREEK TUNNEL CLEANING

| Project Name | Total Project Budget | Prior Year Obligation | Proj Budget Remaining @ 10/1/00 | Obligations Made This Period | Project Budget Remaining | Total Project Obligations | Total Project Budget | Percent of Budget |
|---|---|---|---|---|---|---|---|---|
| Clear Creek Tunnel Cleaning | 250,000 | 99,895 | 150,105 | 149,239 | 866 | 249,134 | 250,000 | 99.65% |

Activity Contact Lead: Greg O'Haver, Northern California Area Office

Activity Milestones/Update:

| | |
|---|---|
| May 2000..... | Begin Negotiations with 8A contractor |
| July 2000..... | Award |
| July - October 16, 2000..... | Equipment procurement & mobilization |
| October 16, 2000..... | Tunnel outage starts; commence work |
| November 21, 2000..... | Shasta staff completes work |

Accomplishments

- The flow meter instrumentation was installed in February 1999 to benchmark the current tunnel condition. The wiring of these meters and flow studies were performed in October 1999. The purchase, installation, and wiring of the flow meters as well as the flow studies were financed through federal appropriations.
- Design engineering is complete.
- Specifications were written and submitted to the procurement office in September 1999 for award in June 2000.
- Maintenance continues to be performed on the scrubbing machine, the support vehicle and the communication wiring system by Northern California Area Office personnel.
- The tunnel cleaning was originally planned for January 11, 2000 to February 5, 2000, however the cleaning has been delayed. The Power Operations Division staff examined the originally proposed tunnel outage of January 11 through February 5, 2000 and concurred with the Water Operations staff that delay of the tunnel outage was justified. An outage during the October 16 to November 17, 2000 period is preferred when Whiskeytown is traditionally drawn down for flood control purposes and Carr operations can be minimized. The revision of

the outage period was coordinated with the Northern California Area Office and Western Area Power Administration. The forecast water operations indicated a greater than 50% chance that water would need to be diverted to the Sacramento River during the originally planned January 2000 outage period. The inability to use the tunnel during the outage period would result in loss of power generation, and would likely produce some environmental and fishery concerns. The Water Operations Division staff believed that if the hydrology were dry, likely 80% of historical normal, there could be operational difficulties associated with Whiskeytown Reservoir and Clear Creek flows of 200 CFS. Clear Creek natural flow would need to be at least greater than 200 CFS to support clear flows without drawing on Whiskeytown to a greater degree than historical operations.

- Negotiations with the 8A Contractor is in progress. The prospective contractor has visited the site to review the work activities. A contract is expected shortly.
- Strategy revised due to complexities with contractor bid and their proposed schedule. Shasta personnel determined they could perform the tunnel scrubbing project. Accepted invitation from BART and key staff visited BART operations to review their tunnel scrubbing process and safety orientation. Ordered ventilation fans and communication systems. Tunnel drained and equipment lowered into the tunnel the week of October 16. The first attempt to make a pass from Lewiston to the Carr portal was tried October 30. After about 3 miles, the communication wire became snarled up and the scrubbing was halted. The 48,000-foot spool of wire was modified and the scrubbing resumed on November 2. Total of 6 passes (3 round trips) were made between November 2 and November 8 at about 2 hours per pass. Region's geologist examined spalling problems found on portions of the tunnel liner in two areas. The damage was not severe enough to require immediate repair and was mapped to insure accurate monitoring in the future. Tunnel was rewatered and available for Carr generation on November 21.
- **Testing of the increased generation achieved from the tunnel cleaning was performed on February 7, 2001. The capacity gained was 13.69 MW based on the 156.7 MW actual capacity measured versus the 141 MW capacity tested on September 28, 2000 prior to the cleaning. This cleaning resulted in a plant efficiency improvement of 3.9%.**

Project Description: The 12 mile tunnel between Lewiston and the Judge Francis (J.F.) Carr Powerplant conveys water from the Trinity River System. The water flows from an intake just upstream of the Lewiston Dam to the Whiskeytown Reservoir. J.F. Carr Powerplant is at the downstream end of the tunnel and is used to regulate the flow in the tunnel. A deposit builds up on the tunnel wall increasing flow losses, which results in a pressure drop at the downstream end. The tunnel can be cleaned by lowering a scraping vehicle into the tunnel and driving the full length. The lowering of the scraping vehicle is very labor intensive. Special safety measures are also required. The tunnel scraping vehicle was modified in 1990 to reduce the lowering effort. In FY1999 instrumentation was installed at J.F. Carr Powerplant to allow the measurement of Powerplant efficiency and impact due to tunnel deposits.

Project Benefit: The current plant capacity varies around 147 MW. An increase of at least 3 to 6 MW in capacity is expected. The plant capacity is anticipated to be 159 MW immediately following the cleaning. During the first year the plant would be losing about 60% of that additional capacity. For the next three years the plant capacity would be around 151 MW. The plant capacity would remain around that level before it would degrade in the fifth year to its current level. Bill Nixon (Reclamation) has assembled a great deal of data over the years, and it is predicted the tunnel should be cleaned every 4 years to get the optimum tunnel performance. The average annual powerplant generation is approximately 400,000 MWh. It is estimated that the tunnel would improve the overall average energy production by 3.4% for the 4 years, resulting in an annual average benefit of $245,000. The benefits would start in 2001 and carry through 2004. The non-discounted B/C ratio is estimated at 3.92.

**CUSTOMER O&M FUNDING PLAN**
**BUREAU OF RECLAMATION**
**REPORT ON FISCAL YEAR 2001 ACTIVITIES**
**FOR THE PERIOD FEBRUARY 1, 2001 – MAY 31, 2001**
**DETAIL**

## KESWICK POWERPLANT TRASH RAKE

| Project Name | Total Project Budget | Prior Year Obligation | Proj Budget Remaining @ 10/1/00 | Obligations Made This Period | Project Budget Remaining | Total Project Obligations | Total Project Budget | Percent of Budget |
|---|---|---|---|---|---|---|---|---|
| Keswick PP Trash Rake | 150,000 | 14,864 | 135,136 | 5,688 | 129,448 | 20,552 | 150,000 | 13.70% |

Activity Contact Lead: Greg O'Haver, Northern California Area Office

Activity Milestones:
Final specifications/requisition to Regional procurement: Original Date - May 1, 2000 Revised Date - February 2001
Invitation for Bid: Original Date - May 22, 2000 Revised Date - June 2001
Award: Original Date - July 20, 2000 Revised Date - July 2001
Completion: Original Date – November 2000 Revised Date - November 2001

Schedule slippage indicated above was as a result of the project being placed as a lower priority project. The trash rake would not be used until the fall time period, it was determined that the project schedule could be slipped without impacting the time when it would be utilized.

Accomplishments
- As of May 31, 2000, engineering drawings were 75% complete.
- The drawings and specifications will be finished in July 2000.
- The Invitation for Bid should be out in July 2000.
- Fabrication and installation should be completed by October 2000. Use of NCAO staff for installation is contemplated in an effort to reduce indirect costs associated with the project.
- The first cleaning with the trash rake should occur in the late fall of 2001.
- Drawings for the trash rake modifications have been reviewed by MP-200 and are now waiting for minor changes. Once Shasta review has been completed and changes to the drawing made, they will be submitted along with a Statement of Work and will go out to bid for fabrication. After receipt of the rake, Shasta mechanics will obtain hydraulic equipment needed to install the modified rake head. The new rake head will be used during the next trash rack cleaning process next November. In FY2000, the trash rack was cleaned in March and September with the existing trash rake. This project was delayed in FY2000 when Shasta engineers/staff redirected their efforts towards cleaning the Clear Creek Tunnel.
- **As of July 27, 2001, the trash rake is being fabricated.**

Estimated Expenditure Schedule to Complete: Carryover funds from FY99 in the amount of $24, 555.09 have been combined with the FY00 funds of $125,000.00 totaling $149,555.09 to complete this project. The carryover from FY99 will be used to complete the engineering. The FY00 funding will be used in the fabrication and installation phases.

Project Description: Waterlogged debris clogs the Keswick unit intakes. The existing trash rake design does not permit efficient removal of the debris. Clearing the trash rack is labor intensive and slow. The rake is unable to dislodge debris at the lower end of the rack. Without full travel, the rake is not very effective. A redesign of the trash rake is needed to improve the overall efficiency of trash removal and decrease the time needed to clean the trash rack.

Project Benefit: The benefits are realized in improved power production and some reduced labor cost. Improved Power Production: An improved trash rake would allow increased number of trash removal cycles and reduction of the net MW loss. The immediate gain would be 75% of the 3-4 MW loss. It is expected that some trash build-up between the cleaning period will account for 25% of the 3-4 MW loss. The trash build-up would have to register in reduced capability before the trash rake is cycled. The average annual energy production is 401 GWh. The headloss due to debris build-up equates to a loss of around 3-7 KWh/AF. The average releases were 6 MAF and the average production was 66 KWh/AF. This value could be increased to 68 KWh/AF (75% of 3 KWh/AF) with the debris removal. It is estimated the an average additional 12,000 MWh of energy could be produced through the use of a redesigned trash rake. This equates to an estimated $216,000 annual average energy benefit. The benefits would start 2002 and carry through 2004. Over the 1999-2004 time frame the non-discounted B/C ratio is 4.32.

**Keswick Trash Rake Funding Plan**

| Non Contract Costs | | 1999 | | | | | | | | 2000 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Oct | Nov | Dec | Jan | Feb | March | April | May | June | July | August | Sep | Oct | Nov | Dec |
| NCAO Engineering | $20,000 | | | | | | $5,000 | $5,000 | $5,000 | | | $2,500 | $2,500 | | | |
| Regional Design | $5,000 | | | | | | | | $5,000 | | | | | | | |
| Regional Contracting | $10,000 | | | | | | | | $5,000 | $2,500 | $2,500 | | | | | |
| Regional Procurement | $5,000 | | | | | | | | | $2,500 | $2,500 | | | | | |
| Total Non-Contract | $40,000 | | | | | | $5,000 | $5,000 | $15,000 | $5,000 | $5,000 | $2,500 | $2,500 | | | |
| Contract Costs | $100,000 | | | | | | | | | | $25,000 | $25,000 | $50,000 | | | |
| Funding Requirement | $140,000 | | | | | | $5,000 | $5,000 | $15,000 | $5,000 | $30,000 | $27,500 | $52,500 | | | |
| Cumulative Funding | | | | | | | $5,000 | $10,000 | $25,000 | $30,000 | $60,000 | $87,500 | $140,000 | | | |

**CUSTOMER O&M FUNDING PLAN**

**BUREAU OF RECLAMATION**

**TECHNICAL REPORT ON FISCAL YEAR 2001 ACTIVITIES**
**FOR THE PERIOD FEBRUARY 1, 2001 – MAY 31, 2001**

**DETAIL**

**SPRING CREEK TRANSFORMER REHAB**

| Project Name | Total Project Budget | Prior Year Obligation | Proj Budget Remaining @ 10/1/00 | Obligations Made This Period | Project Budget Remaining | Total Project Obligations | Total Project Budget | Percent of Budget |
|---|---|---|---|---|---|---|---|---|
| Spring Creek Transformer 1/ | 495,000 | 0 | 495,000 | 7,042 | 487,958 | 7,042 | 495,000 | 1.42% |

1/ The Governance Board approved the transfer of funds from this project to RRST funds and to be replenished with FY02 funds.

Activity Contact Lead: Larry Ball, Northern California Area Office

Activity Milestones/Update:

Begin Specifications: Development: October 2000
Award Contract: September 2001
Transformer Outage: October 15, 2001 through November 30, 2001

Project Description: The Spring Creek transformer bank is comprised of 3-single phase transformers serving both generating units. The project is to provide environmental risk mitigation at this powerplant. The work is to recondition the 3 transformers by replacing all gaskets, oil pump isolation valves, flow switches, recondition oil pumps, process existing oil, repair porous welds, and paint transformers. This repair will extend the life of the transformers by the 3 to 5 years it will take for their replacement to be accomplished.

Benefit: This powerplant is one of the most critical in the CVP in that except for flows provided from Whiskeytown Reservoir into Clear Creek, all other Trinity River Diversion water flows through Spring Creek powerplant. Loss of any of the Spring Creek transformers would shut down generation at Spring Creek as well as J. F. Carr powerplant and reduce the generation at Keswick.

Accomplishments

- Gathering of field data and information has been completed and writing of the specification initiated. Initially, it was determined that based on the very deteriorated condition of the transformer oil in phase A, to procure oil reconditioning services separate from the retrofit contract. However, it was further determined that the oil was in such bad shape, it could not be reconditioned and should be replaced. The estimate for replacement of the oil in just one transformer was in excess of $60,000. It was then decided to include the oil replacement in the retrofit contract to be accomplished fall 2001.
- **Repair specifications have been completed and the Invitation for Bids is to be issued July 27, 2001, and award to be made on September 20, 2001. Outage for the work is tentatively set for October 15, 2001.**

**Spring Creek Transformer Refurbishment Funding Plan**

| Non Contract Costs | | 2000 | | | 2001 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Oct | Nov | Dec | Jan | Feb | March | April | May | June |
| NCAO Engineering | | | | | | | | | | |
| Regional Design | $15,000 | $2,500 | $2,500 | $2,500 | | | $2,500 | $2,500 | $2,500 | |
| Regional Contracting | $13,000 | | $6,500 | $6,500 | | | | | | |
| Regional Procurement | $12,000 | | $3,000 | $3,000 | $3,000 | | | | $3,000 | |
| Contract Administration | $60,000 | $2,500 | $5,000 | $5,000 | $5,000 | | $12,500 | $15,000 | $15,000 | |
| Total Non-Contract | $100,000 | $5,000 | $17,000 | $17,000 | $8,000 | $0 | $15,000 | $17,500 | $20,500 | |
| Contract Costs | $395,000 | | | | | $20,000 | $100,000 | $125,000 | $120,000 | $30,000 |
| | | | | | | | | | | |
| Funding Requirement | $495,000 | $5,000 | $17,000 | $17,000 | $8,000 | $20,000 | $115,000 | $142,500 | $140,500 | $30,000 |
| Cumulative Funding | | | $22,000 | $39,000 | $47,000 | $67,000 | $182,000 | $324,500 | $465,000 | $495,000 |

**CUSTOMER O&M FUNDING PLAN**
**BUREAU OF RECLAMATION**
**REPORT ON FISCAL YEAR 2001 ACTIVITIES**
**FOR THE PERIOD FEBRUARY 1, 2001 – MAY 31, 2001**
**DETAIL**

**SPRINGCREEK POWERPLANT O&M**

| Project Name | Total Project Budget | Prior Year Obligation | Proj Budget Remaining @ 10/1/00 | Obligations Made This Period | Project Budget Remaining | Total Project Obligations | Total Project Budget | Percent of Budget |
|---|---|---|---|---|---|---|---|---|
| Spring Creek Powerplant O&M | 490,000 | 0 | 490,000 | 320,906 | 169,094 | 320,906 | 490,000 | 65.49% |

Activity Contact Lead: Larry Ball, Northern California Area Office

Activity Milestones: Routine O&M activities accomplished throughout the year.

**CUSTOMER O&M FUNDING PLAN**
**BUREAU OF RECLAMATION**
**REPORT ON FISCAL YEAR 2001 ACTIVITIES**
**FOR THE PERIOD FEBRUARY 1, 2001 – MAY 31, 2001**
**DETAIL**

## SPRING CREEK AIR CIRCUIT BREAKER RETROFIT

| Project Name | Total Project Budget | Prior Year Obligation | Proj Budget Remaining @ 10/1/00 | Obligations Made This Period | Project Budget Remaining | Total Project Obligations | Total Project Budget | Percent of Budget |
|---|---|---|---|---|---|---|---|---|
| Spring Cr Air Circuit Breaker 1/ | 183,000 | 0 | 183,000 | 0 | 183,000 | 0 | 183,000 | 0.00% |

1/ The Spring Creek Air Circuit Breaker budget was reduced by $1,000 to compensate for charges made against the canceled New Melones Butterfly Value Project.

Activity Contact Lead: Larry Ball, Northern California Area Office

Activity Milestones/Update:

| | |
|---|---|
| Begin Specifications: | February 2001 |
| Bids Received: | April 2001 **Revised Date: August 3, 2001** |
| Award Contract: | June 2001 **Revised Date: August 24, 2001** |
| Retrofit: | October 2001 |

Project Description: Major components of generator unit breakers at Spring Creek (1) and Carr (2) are wearing out. Retrofit of these breakers would replace primary components. Parts and replacement work would be done together by one contractor. Retrofit work will be scheduled during Spring Creek transformer outage and during annual Carr generator maintenance.

Benefit: This is a life-extension project for the unit breakers.

**CUSTOMER O&M FUNDING PLAN**

**BUREAU OF RECLAMATION**
**REPORT ON FISCAL YEAR 2001 ACTIVITIES**
**FOR THE PERIOD FEBRUARY 1, 2001 – MAY 31, 2001**
**DETAIL**

**RAPID RETURN TO SERVICE**

| Project Name | Total Project Budget | Prior Year Obligation | Proj Budget Remaining @ 10/1/00 | Obligations Made This Period | Project Budget Remaining | Total Project Obligations | Total Project Budget | Percent of Budget |
|---|---|---|---|---|---|---|---|---|
| JF Carr Powerplant, Unit 1 | 11,983 | 0 | 11,983 | 11,983 | 0 | 11,983 | 11,983 | 100.00% |
| New Melones Tie Rods | 400,000 | 0 | 400,000 | 400,000 | 0 | 400,000 | 400,000 | 100.00% |
| New Melones Unit 2 1/ | 54,000 | 0 | 54,000 | 70,280 | (16,280) | 70,280 | 54,000 | 130.15% |
| RRS Unprogrammed 2/ | 359,017 | 158,222 | 200,795 | 0 | 200,795 | 158,222 | 359,017 | 44.07% |
| Total - RRS 3/ | 825,000 | 158,222 | 666,778 | 482,263 | 184,515 | 640,485 | 825,000 | 77.63% |

1/ An accounting adjustment will be made to reduce this obligation at or below the $54,000 budgeted amount.
2/ The Governance Board also approved additional $200,000 of funding borrowed from the Spring Transformer Rehab Project.
3/ $216,778 was carried over from FY00. The Governance Board approved utilization of these funds in FY2001.
The Total Project Budget consists of funds from FY99 for $125,000, FY00 for $250,000 and FY01 for $250,000.

Activity Lead: Central Valley Operations Office

Status: During the period from February 1, 2001 to May 31, 2001, RRTS funds were utilized in 1 instances:

- The 4-week long Unit 2 annual maintenance at New Melones that was scheduled to be from April 30 to May 25 was shortened by one-week to allow CVP power customers to be able to purchase excess capacity with the Unit 2 in-service. The decision to accelerate the unit to return to service early was made during a time when capacity prices were high.